# Louisiana Department of Environmental Quality (LDEQ)
# Office of Environmental Services

## STATEMENT OF BASIS

**Sterlington Electric Generating Plant**
**Entergy Louisiana, LLC**
**Sterlington, Ouachita Parish, Louisiana**
**Agency Interest No.: 19483**
**Activity Number: PER19960002**
**Draft Permit 2160-00004-V0**

### I. APPLICANT:

**Company:**
Entergy Louisiana, LLC
10055 Grogans Mill Road
Parkwood Two Building, Mail Unit T-PKWD-4
The Woodlands, TX 77380

**Facility:**
Sterlington Electric Generating Plant
101 Boardman Avenue, Sterlington, Ouachita Parish, Louisiana
Approximate UTM coordinates are 586.30 kilometers East and 3618.70 kilometers North, Zone 15

### II. FACILITY AND CURRENT PERMIT STATUS:

Sterlington Electric Generating Plant is an existing fossil fuel steam/electric generating facility owned and operated by Entergy Louisiana, LLC. Sterlington Electric Generating Plant currently operates under Permit Numbers 62 and 164C, issued July 28, 1971, and April 17, 1973, respectively.

### III. PROPOSED PERMIT / PROJECT INFORMATION:

**Proposed Permit**

A permit application and Emission Inventory Questionnaire were submitted by Entergy Louisiana, LLC on October 4, 1996, requesting a Part 70 operating permit. Additional information dated May 3, 2005, June 28, 2005, December 16, 2005, and January 3, 2006, was also received.

The draft permit was originally placed on public notice on January 30, 2006. During that time, it was discovered that there were more up to date emission factors available. With this application, Sterlington Electric Generating Plant

proposes to obtain an initial part 70 operating permit and to reconcile emissions estimates using more correct emission factors. This change does not reflect physical changes or changes in the method of operation.

## Project Description

Sterlington Electric Generating Plant is an existing fossil fuel steam/electric generating facility.

The facility contains two identical combined cycle units consisting of combustion turbines (C7AB and C7C) and heat recovery steam generators with duct burners (C7ABH and C7CH). The units have the ability to combust natural gas and No. 2 fuel oil. The units can exhaust either through their own stacks or through the heat recovery steam generator (HRSG) stacks. During startups and shutdowns, the turbines are able to run in simple cycle mode, which means that they do not run in conjunction with the associated HRSG.

The Unit 6 boiler has the ability to combust natural gas, and No. 2 fuel oil. Unit 6 exhausts out of two stacks, C6A and C6B.

The heat recovery steam generators (HRSGs) have duct burners which combust natural gas or No. 2 fuel oil. The duct burners each have a maximum heat input of 277 MM Btu/hr.

Section 6 of the Permit Application, dated October 4, 1996, lists the permitted emission rate before and after the project (in tons per year) for each emission point in the permit. These changes are summarized in the Permitted Air Emissions Section.

## Permitted Air Emissions

Estimated changes in permitted emissions in tons per year are as follows:

| Pollutant | Emissions |
|---|---|
| $PM_{10}$ | 207.83 |
| $SO_2$ | 4915.04 |
| $NO_X$ | 22469.64 |
| CO | 1648.70 |
| VOC | 82.04 |

LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

| Pollutant | Emissions |
|---|---|
| 1,1,1 – Trichloroethane† | 0.018 |
| Benzene | 0.066 |
| Dichlorobenzene | 0.038 |
| Formaldehyde | 3.866 |
| n-Hexane | 57.008 |
| Naphthalene | 0.092 |
| Toluene | 0.500 |
| Xylenes | 0.008 |
| Total | 61.596 |

†Non-VOC TAP

## Prevention of Significant Deterioration Applicability

The pollutants are not being increased by significant amounts by the project. Therefore, the proposed facility is not subject to the requirements of the PSD program.

## MACT Requirements

Sterlington Electric Generating Plant is a major source of toxic air pollutants (TAPs) pursuant to LAC 33:III.Chapter 51. However, the emissions resulting from the combustion of natural gas, which is a Group 1 virgin fossil fuel, are exempt per LAC 33:III.5105.B.3.b.

## Air Modeling Analysis

No dispersion modeling was performed.

## General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

**Insignificant Activities**

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the draft Part 70 permit.

**Regulatory Analysis**

The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the draft permit, or where provided, Tables 2, 3 and 4 of the draft permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the draft permit, or where provided, Tables 2, 3 and 4 of the draft permit.

This draft permit was reviewed for compliance with the Louisiana Part 70 operating permit program and Louisiana Air Quality Regulations. NSPS and NESHAP regulations do not apply.

## IV. Permit Shields

There is no permit shield.

## V. Periodic Monitoring

**Acid Rain Monitoring**

Sterlington Electric Generating Plant is required to install and operate a $NO_x$ and $SO_2$ continuous emissions monitoring system (CEMS) on EQT1-EQT6. Sterlington Electric Generating Plant will have to monitor that the CEMS are operational when required. Sterlington Electric Generating Plant will also have to monitor the heat input rate to each unit for each fuel fired.

**Compliance Assurance Monitoring**

Federal regulation 40 CFR 64-Compliance Assurance Monitoring is applicable to this facility. A CAM plan will have to be submitted for EQT3-EQT6 for carbon monoxide as part of the application for a permit renewal.

| VI. Applicability and Exemptions of Selected Subject Items | | |
|---|---|---|
| ID No: | Requirement | Notes |
| EQT1 & EQT2 | NSPS Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971. [40 CFR 60.40] | DOES NOT APPLY. Constructed and modified prior to August 17, 1971. |
| EQT3 & EQT5 | NSPS Subpart GG - Standards of Performance for Stationary Gas Turbines. [40 CFR 60.330] | DOES NOT APPLY. Constructed prior to October 3, 1977. |
| EQT4 & EQT6 | NSPS Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971. [40 CFR 60.40] | DOES NOT APPLY. Heat input rate is less than 250 MMBTU/hr. [40 CFR 60.40(a)(2)] |
| EQT3 - EQT6 | Compliance Assurance Monitoring (CAM) – NOx [40 CFR 64] | EXEMPT. Sources covered under the acid rain program are exempt from CAM. [40 CFR 64.2(b)(1)(iii)] |
| | Compliance Assurance Monitoring (CAM) – CO [40 CFR 64] | CAM Plan due as part of application for renewal. [40 CFR 64.5(b)] |

| VII. Streamlined Requirements | | | |
|---|---|---|---|
| **Unit or Plant Site** | **Programs Being Streamlined** | **Stream Applicability** | **Overall Most Stringent Program** |
| Sterlington Electric Generating Plant | None | - | - |

## VIII. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Carbon Monoxide (CO) – A colorless, odorless gas which is an oxide of carbon.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Hydrogen Sulfide - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides ($NO_x$) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to

ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound - Any compound of carbon and another element. Examples: Methane ($CH_4$), Ethane ($C_2H_6$), Carbon Disulfide ($CS_2$)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

$PM_{10}$- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide ($SO_2$) – An oxide of sulphur.

Title V permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.